

#### **Abstract of the Disclosure**

In general, the invention relates to techniques for distinguishing and resolving all or some subset of the chemical compounds in a mixed sample. The individual chemical components may all be known, unknown or combinations thereof. In particular, the invention relates to “n-Dimensional MAP Chromatography” (NDMC) as a technique for performing chromatographic analysis on a sample containing multiple components. Other aspects of the invention relate to techniques for peak and component matching across different experiments that complement and form part of NDMC in one specific embodiment.